RESOURCE MANAGEMENT

B.C. Forest Service Assessment of Land Use for the Carmanah Valley

Technical Background

Province of
British Columbia
Ministry
of Forests

90-04738/

Technical Background: Carmanah Valley

Background

The Carmanah Valley (6 665 ha) is within Tree Farm Licence 44 (TFL 44) held by MacMillan Bloedel Ltd. Timber harvested in this area is processed at company facilities on southern Vancouver Island.

The Carmanah Valley contains some of the best old growth alluvial Sitka spruce stands remaining on Vancouver Island. These stands require long-term protection for ecological, recreational and heritage purposes. Public debate has ensued over the most appropriate land use for the remainder of the valley.

The Carmanah drainage can be divided into three ecological units: Lower Carmanah, Upper Carmanah, and August Creek.

The Lower Carmanah includes about one-half of the valley and is separated from the Upper Carmanah and August Creek by an obvious topographic break in the landscape. It contains the old growth spruce stands along with other ecologically associated forest areas.

August Creek is a tributary to Carmanah Creek. It is a steep "V" shaped valley that is separated from the Lower Carmanah by a ridge.

The British Columbia Forest Service evaluated land use in the Carmanah Valley according to the following principles:

- all resource values must be identified and evaluated in an objective manner, including recreation, fisheries, wildlife, archaeologic sites, wilderness, water, minerals, ecology and timber;
- evaluation must be sufficiently broad in scope to recognize current trends in public policy and environmental management;
- evaluation must include objective technical assessments of implications for integrated resource management; and,
- timely and equitable opportunities must be provided for public participation.

With these principles in mind, the Forest Service evaluated MacMillan Bloedel's plan. Staff were instructed to conduct a well-defined assessment and to provide significant opportunities for public participation.

The Forest Service also recognized the complexity involved in resolving Carmanah's competing land use demands. For this reason, it was imperative that a sound technical analysis be conducted.

History

- 1984 — MacMillan Bloedel Ltd.'s management and working plan for tree farm licence (#44) was approved.
- It has been known for several years that large Sitka spruce trees grow on the floodplain of Carmanah Creek. A number of people, after visiting the Carmanah Valley in spring 1988, urged the Forest Service to protect the area of large, old, Sitka spruce.
- May 20, 1988 — As a result of public concern, MacMillan Bloedel Ltd. discontinued all new road construction activities in the Carmanah Valley so as to assess the uniqueness of the Sitka spruce stands.
- June, 1988 — MacMillan Bloedel Ltd. applied to establish two recreation sites to protect the groves of large spruce and the Carmanah Giant.
- July, 1988 — The Forest Service specified criteria for preparing a special management plan for the Carmanah Valley by MacMillan Bloedel Ltd.
- September, 1988 — MacMillan Bloedel Ltd. submitted a proposed management plan for the Carmanah Valley to the Forest Service for review and comment.
- January, 1989 — Following public review, MacMillan Bloedel Ltd. revised the proposed management plan, which was then submitted to the Forest Service.

- February, 1989 — The Forest Service initiated additional opportunities for public review and comment on the revised plan.
- February, 1989 , to present — The Forest Service conducted an internal review of MacMillan Bloedel Ltd.'s proposed plan, assessed all submitted public comment and reviewed input from other agencies.

MacMillan Bloedel Ltd.'s management plan

MacMillan Bloedel Ltd.'s proposed management plan for the Carmanah Valley, as revised in January 1989, calls for:

- a 538-hectare reserve around the Sitka spruce stands, stretching in a corridor from the boundary of Pacific Rim National Park northeastward along the lower Carmanah Creek;
- a 1 912-hectare special management area surrounding the proposed reserve;
- road construction and timber harvesting methods which protect the large spruce and minimize the visual impact of timber harvesting viewed from the reserve; and,
- a follow-up committee to monitor the implementation of the proposed Carmanah management plan — this committee would include representatives from the company, the Forest Service, other government agencies, and various public organizations.

MacMillan Bloedel Ltd.'s proposed plan states "that preservation should be carried out in a rational, planned manner," and it favors the development of a comprehensive provincial wilderness plan, rather than *ad hoc* wilderness reservations.

Public comment

Public comment ranges from advocating the preservation of the entire Carmanah Valley in its natural state, to the implementation of MacMillan Bloedel Ltd.'s proposed plan.

The Forest Service also received submissions which, collectively, provide a complete spectrum of opinion between these two options.

Not surpisingly, there is considerable depth of feeling among those persons who have responded to this issue.

Those who advocate total preservation feel strongly that something very important and non-renewable will be lost or seriously jeopardized if MacMillan Bloedel Ltd.'s proposed plan is approved.

On the other hand, those who support the proposed plan feel that the economic benefits to forest workers, shareholders, and the general public may be permanently reduced unless timber harvesting in the valley is approved.

A third type of response, from those who favor limited and closely regulated logging in the valley, indicates a willingness to see a decision based on "compromise."

Numerous respondents, independent of their position on Carmanah, advocate the need for a provincial land-use strategy for the management of old-growth forests, wilderness, and the 'working' forest.

Written public comments were submitted to the Forest Service in a variety of forms including briefs, letters, postcards, and petitions.

In addition, the Forest Service developed a formal response-form to elicit public comment on the proposed plan.

Discussion of major issues

Forest Service staff specialists reviewed MacMillan Bloedel Ltd.'s proposed plan, public comments and other submissions. This review indicates that the following issues must receive special consideration:

- *Protecting the spruce stands*

  MacMillan Bloedel Ltd.'s proposed plan recognizes the alluvial spruce ecosystems

as outstanding in several ways. It states that "considering both size (of the individual trees) and areal extent, the alluvial spruce stands are among the best remaining on Vancouver Island."

The trees are also younger than initially assumed — 200 to 500 years old — indicating the high productivity of these sites for Sitka spruce.

The ecosystems in the proposed 538-hectare reserve area have been described in detail, including specific aspects, such as age structure, regeneration dynamics, and threats to the alluvial ecosystem. However, detailed ecological classification has not been done for the portion of the Carmanah Valley that is outside the proposed reserve area.

The potential for windthrow in the lower and mid Carmanah Valley is the most significant threat to the protection of the spruce stands.

MacMillan Bloedel Ltd. proposes an overall timber-harvesting strategy for reducing windthrow hazard, which includes carefully located cutblocks, small openings, and selective cutting along edges of openings.

This proposed strategy for reducing windthrow may theoretically be effective, but there are no documented examples of this approach being successful in similar areas on Vancouver Island.

MacMillan Bloedel Ltd's proposed reserve and adjacent 'special management area' are intended to provide a windfirm boundary around the spruce stands. However, a larger area may be needed to minimize microclimatic influences on the overall ecology of the spruce stands. These influences could result from timber harvesting in immediately adjacent areas.

Landslides that can result in an increased transportation of sediment downstream, could destabilize the stream banks of the alluvial spruce stands.

MacMillan Bloedel's hydrological assessment calls for protected streamside areas, combined with careful landslide prevention and a dispersed pattern of cutblocks. In theory, these measures will protect the watercourses. Again, there are no local examples where this method has been successfully applied.

The hydrological work conducted to date does not incorporate floodplain mapping, nor does it link landslide hazard to the sediment transport capability of August and Carmanah creeks. This information is necessary to highlight sensitive areas that have a combination of unstable slope, proximity to the creek, and high, bedload-movement capacity.

Basic stream research map-units that become part of the planning map-units are not described, nor is information provided on actions which could be taken should bank erosion start within the streamside reserve.

Climatic data indicate that the Carmanah Valley experiences heavy precipitation during storms and, in some years, the upper watershed has a snow pack. This adds to the potential for rain-on-snow events. There is a high capacity for bedload transport downstream through the proposed reserve area. A high priority must, therefore, be placed on keeping upper Carmanah Creek and August Creek free from debris or landslide material and on the careful placement and size of culverts.

Current geotechnical information is based on reconnaissance level mapping. This level of interpretation provides a useful overview, but further terrain mapping with a high-level of field checking is necessary before any timber harvesting.

Slope stability maps are required, which use the statistical, slope-failure-probability methodology that MacMillan Bloedel Ltd. has developed for its tree farm licence (#44).

The geotechnical information is also related to planning for revegetation of disturbed sites to control sediment.

Further planning must specify requirements for prompt seeding or hydroseeding of cut banks, landslides, or any other disturbed mineral soil.

- *Providing opportunities for sustainable harvest*

Timber from the Carmanah Valley contributes to the allowable annual cut for tree farm license (#44) and is considered to be part of the supply to existing mills. Any land reserves in the valley will reduce the amount of timber cut from the tree farm licence and subsequently affect forest industry employment.

The MacMillan Bloedel proposed plan discusses economic-value figures for timber and recreation resources, and recognizes that an accurate cost-benefit analysis is not cur-rently possible due to the absence of data.

Several problems exist with the plan's comparison of economic contributions from recreation-use and timber-harvesting. For example, indirect employment accounts for more than half of the estimated contribution from timber values, but is not estimated for recreation. Data for timber are also based on extensive historical experience, while data for recreation are only projections.

The economic value of recreation must deal with overall benefits, including the 'willingness-to-pay' values for use and preservation. Non-use values — option, existence, or bequest values — have not been estimated.

Direct and indirect economic impacts are very significant if the Carmanah Valley is considered in the context of other tree farm licence (#44) lands, which are also the subject of contentious land use discussions.

- *Providing for recreation*

While MacMillan Bloedel Ltd.'s plan discusses opportunities for recreation in the valley and proposes measures to minimize visual impacts, a comprehensive recreation plan has not yet been undertaken for the area.

The Carmanah Valley must also be assessed for its regional contribution to a range of recreational opportunities.

The Forest Service recreation inventory indicates that southern Vancouver Island has a relatively small amount of wilderness-type recreation opportunities. Only about seven per cent of the provincial forest lands within a 160-kilometre radius of Victoria are unroaded. This is low compared to similar lands surrounding Vancouver and many other population centres in B.C.

The Lower Valley is heavily used and there is an immediate need for safe and appropriate facilities.

Any improved road or trail access to the Carmanah Giant in the lower valley could alter the management objectives for Pacific Rim National Park, and could have an impact on the integrity of the spruce and on the nearby West Coast Trail.

- *Managing for wildlife*

In focussing on the importance of protecting the old-growth, Sitka spruce, the special value of old-growth to wildlife species has not been fully explored.

The data on wildlife included in MacMillan Bloedel Ltd.'s proposed plan were collected 13 years ago and have not been updated. Only waterfowl and deer were surveyed at that time.

The Carmanah Valley has a restricted range of elevation, climate, topography, and habitat diversity. As a result, wildlife diversity can be assumed to be low as well.

The nearby Pacific Rim National Park and the Nitinat Triangle contain large areas of the same habitats found in Carmanah.

Under MacMillan Bloedel Ltd.'s proposed plan, the initial stages of development in the Carmanah Valley would not have a serious impact on wildlife. In the longer term, as conversion of the old-growth forests to younger stands proceeds, major changes in numbers and distribution of some wildlife species can be expected.

The configuration and exposed perimeters of MacMillan Bloedel Ltd.'s proposed low-elevation spruce reserve will not provide sufficient protected habitat for wildlife species that require the old-growth forests.

Since the wildlife survey is one of the weakest components of existing inventories, it would be appropriate to ensure that sufficient area is protected around the old-growth Sitka spruce to maintain habitat for wildlife that may be dependent on that old-growth. Preliminary Canadian Wildlife Service surveys suggest, for example, that marbled murrelets may nest in the lower valley.

A buffer of at least 200 meters around the spruce ecosystems is required to protect old-growth-dependent species from disturbances, such as timber harvesting.

The fisheries values in Carmanah and August Creeks are comparatively low. Small numbers of sea-run fish, including steelhead and cutthroat trout, and chinook and coho salmon, have access to the lower 2.7 kilometres of Carmanah Creek.

Progress upstream beyond that point is blocked by impassable falls. The only fish in the upper watershed is a small population of resident rainbow trout. The sea-run and the resident fish are sufficiently protected by the MacMillan Bloedel proposed plan, which exceeds requirements under the Coastal Fish-Forestry Guidelines.

Summary

Much of the debate over the management of Carmanah Creek focuses on the preservation of the alluvial Sitka spruce ecosystem in the lower valley.

The protection of these spruce stands should be the highest priority in any management strategy. All parties agree on this point.

At the same time, there is considerable disagreement on what measures are appropriate to ensure the protection of these highly valued stands.

This divergence of opinion — over what constitutes an acceptable level of risk — accounts for the various levels of protection which have been proposed. These opinions range from preserving the entire valley to accepting MacMillan Bloedel Ltd.'s proposed plan.

- Setting aside the entire valley provides the greatest assurance of protecting the old-growth spruce stands and creates a wilderness setting for recreation and wildlife on southern Vancouver Island.

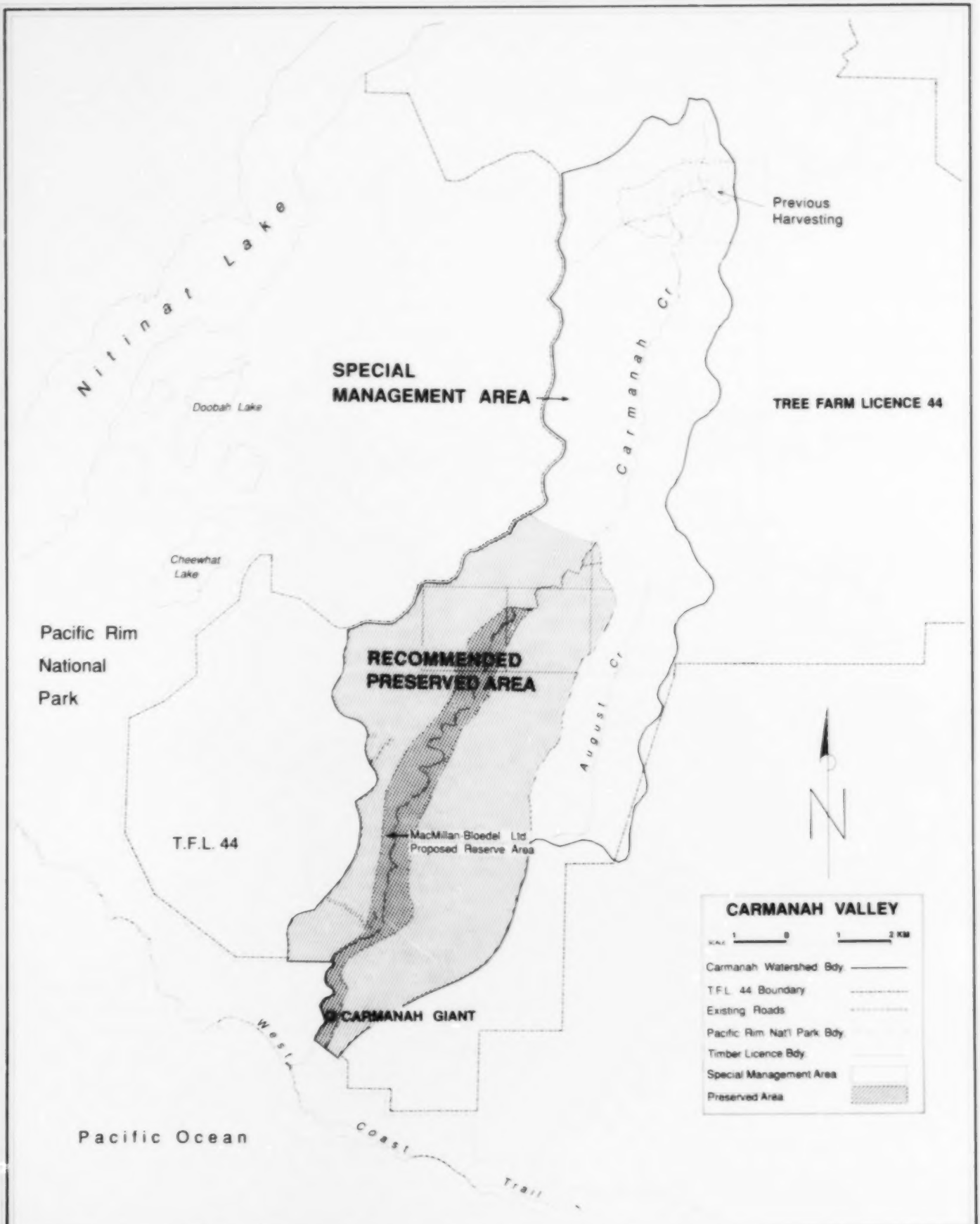
  However, preservation of the entire valley also significantly affects those people who rely on the forest industry for direct employment and associated economic benefits.

  This is particularly important when the values in Carmanah Creek are considered in the context of current demands for the preservation of old-growth forests and wilderness in other areas on Vancouver Island and in southwestern B.C.

  At the other end of the spectrum, Forest Service assessment of the MacMillan Bloedel Ltd.'s proposed plan indicates that there is an unacceptable risk of windthrow and ecological alteration associated with timber harvesting in the lower Carmanah Valley.

  On the basis of these concerns, the plan proposed by MacMillan Bloedel Ltd. is not acceptable to the Forest Service.

- While timber-harvesting activities in the lower Carmanah Valley would introduce


Nitinat Lake
Doobah Lake
Cheewhat Lake
Carmanah Cr.
August Cr.
Previous Harvesting
SPECIAL MANAGEMENT AREA
TREE FARM LICENCE 44
Pacific Rim National Park
RECOMMENDED PRESERVED AREA
T.F.L. 44
MacMillan Bloedel Ltd. Proposed Reserve Area
CARMANAH GIANT
West Coast Trail
Pacific Ocean
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CARMANAH VALLEY
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Carmanah Watershed Bdy.
T.F.L. 44 Boundary
Existing Roads
Pacific Rim Nat'l Park Bdy.
Timber Licence Bdy.
Special Management Area
Preserved Area

unacceptable man-caused risks to the integrity of the old-growth spruce stands, there is no indication that carefully controlled harvesting in the upper valley would lead to greater risks than those which occur naturally.

Similarly, harvesting immediately adjacent to MacMillan Bloedel Ltd.'s proposed, recreation reserve would unquestionably alter the wilderness setting surrounding the large spruce.

However, if harvesting is permitted only in the upper valley and August Creek, the resulting large reserve would retain a quality wilderness recreation experience for all but the most-demanding outdoor enthusiast.

This alternative would create a recreation and old-growth reserve about eight times the size of Stanley Park and still allow controlled timber harvesting in upper Carmanah Valley.

For these reasons, the Forest Service has recommended that a 3 310-hectare preserved area be established over the lower Carmanah Valley from a point approximately 0.5 kilometres upstream of the confluence of Carmanah and August Creeks.

This preserved area should be permanently removed from future timber harvesting.

This recommendation is subject to the Forest Service being completely satisfied that any proposed harvesting in the upper Valley or August Creek will have no effect on the preserved area.

Additional field studies and planning are necessary to determine specifically where and how harvesting can take place in the upper Carmanah Valley.

Finally, it is clear from the perspectives of both the forest industry and concerned public groups, that a comprehensive strategy for coastal old-growth timber, which strikes a balance between resource development and protection, is required.

The Forest Service has recently initiated and will continue to develop an action plan for the identification and management of old-growth forests.

Further action and division of responsibility

Forest Service specialists will review all studies to be conducted by MacMillan Bloedel Ltd. and will ensure that all methodology, field work, and analysis are of a high standard.

Road-building and timber-harvesting approvals outside the proposed preserved area will be held in abeyance until the following are completed:

1. A recreation management plan to protect the watershed's unique values should be prepared and implemented. This plan should be prepared in consultation with other agencies and groups interested in recreation in the area. The plan should:
   - provide management objectives which protect the wilderness values of the reserve;
   - provide a recreation management strategy for the lower Carmanah Valley which ensures that levels of use do not damage the spruce groves;
   - provide for the development of a landscape management plan, which preserves the scenic quality of the Carmanah Valley; and,
   - provide for recreational use for the remainder of the valley which is compatible with the management of the preserved area.
2. MacMillan Bloedel should:
   - close and reclaim the Bonilla Main, Rosander Main and R500 roads at the most appropriate point outside the boundary of the preserved area;
   - undertake an intensive 1:10,000 terrain-stability survey of the upper valley and August Creek, provide a reach-by-reach stream channel survey, and assess sediment transport capability; this information will highlight areas near the creek which might have a combination

of unstable slopes and high bedload movement capacity; the results from this work will be used to define environmentally sensitive areas and "safe" zones of low risk;

- map the major ecosystems of the upper valley and August Creek at a scale of 1:10,000; this information will be used in the development of any harvesting plans and prescriptions;
- develop a detailed timber management plan for the entire upper valley and August Creek, based on the results of further studies, including harvesting system specifications;
- conduct a detailed field inspection with Forest Service field staff and geotechnical specialists assessing slope stability, channel erosion potential, and the location of all proposed roads, landings, channel crossings and culverts; joint inspections should occur at all critical stages of road and cutblock development; all the operational constraints identified during these inspections will be documented and binding;
- ensure special measures are taken to protect the area, such as enhanced road-building standards, frequent field supervision, and limitations on the timber harvesting rate; and,
- prepare a written evaluation of the long-term (at least 20 years) effect of timber harvesting on populations of all wildlife species likely to inhabit the Carmanah watershed; the evaluation should describe effects on these wildlife categories:
  - each big-game, major predator (example: wolf and cougar) and fur-bearer species;
  - each species of management concern (example: those on the Ministry of Environment's "endangered" and "sensitive" lists); and,
  - all other species of birds, mammals, amphibians and reptiles grouped by taxonomic, life-form, or guild categories.

3. A public advisory group should be established to monitor the implementation of all harvesting and recreation plans.

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